PikaBlue by FLASH Holdings (12. Epsilon)

Executive Summary

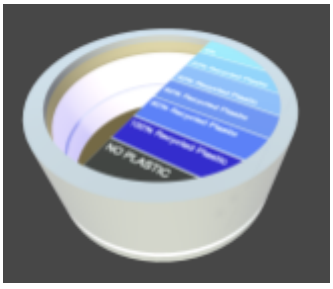
PikaBlue is a portable tubular flashlight lens designed to detect the concentration of recycled plastics in clothing materials and other plastic products. Our innovative technology aims to empower consumers to make informed choices by providing real-time numerical and visual information about the truthfulness of products' green marketing.

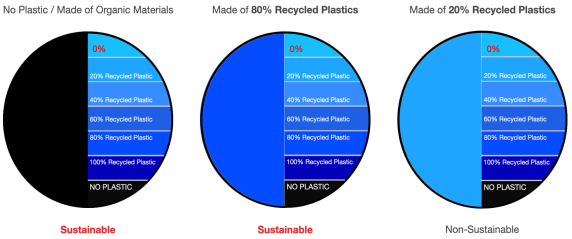
Background & Motivation

The textile and clothing industry has faced scrutiny due to its environmental damages like high water usage, chemical pollution, extensive waste generation, and plastic use [1]. Amongst these, companies have particularly focused on the problem of waste generation by 1) incorporating recycled plastic materials into their products or 2) eliminating the use of plastics; 72% of the world's largest companies have made some commitment to reducing plastic pollution [2]. So, promoting and advertising the use of recycled plastic materials has become an imperative part of green-washing for many companies [3]. However, verifying the actual percentage of recycled content has been a complex task for consumers. Many have resorted to blind faith when searching for sustainable products, resulting in a skewed and unreliable market; in fact, two-thirds of multinational companies fail to fulfill their pledges to reduce plastic pollution[4], but consumers are unaware. By purchasing PikaBlue, consumers can visually verify the numerical value of plastic contents in products, legitimizing truly recycled plastic products and preventing the consumption of falsely green or over-marketed recycled products.

Product Description

The PikaBlue is a portable flashlight lens that distinguishes the concentration of recycled plastics and the presence of plastics in clothing material. The outer walls of the PikaBlue are constructed of recycled aluminum, while the inside consists of a one-sided mirror, an electromagnetic radiator (UltraViolet Index 1), and a battery source to power the flashlight. We utilize plastic's fluorescent properties under UV rays and use the electromagnetic radiator to emit wavelengths (UVI 1) that reflect from plastic to create different shades of blue. The different shades represent the concentration of Propylene monomers, the major component of plastic [5]. Plastic purity is lost each time in the recycling process (i.e. decreased Propylene monomer concentration) [6]; hence, a dark shade of blue represents low purity, indicating that the material is mostly made of recycled plastics. If the material does not include any plastics, the material will not emit color. The one-way mirror film eliminates all external light inside, enabling color-coded indication.





Product Prototype

PikaBlue is a lightweight device that weighs an estimated 56 grams. With its low-profile design and portability, it provides easy access to consumers. The device's outer cylinder is made from recycled aluminum while the lens is made of recycled glass. The radiator and one-sided mirror include pieces of both materials. When used, plastic materials will emit a blue shade that is caused by the light reflections from the Propylene monomers in the material. The dispersed UVI 1 waves have been tested as completely safe for the fabric or the human eye [7].

Market Analysis

Our target market is focused on, but not limited to, Japanese consumers aged 16-45 with medium to high incomes, who are willing to spend more on sustainable fashion. Today, Japanese interest in sustainable fashion is increasing, with 71.6% of the 45 million consumers in our targeted age bracket being interested in sustainable fashion [8]. The most common barrier to making sustainable

consumption choices is the lack of accurate information and transparent policies of large businesses claiming to be sustainable [9]. PikaBlue responds to these needs by providing an option to personally check items at an affordable price. Hence, PikaBlue will be distributed to local and online stores, using a B2B sales method. Previous solutions to the waste generation and plastic use problems have 1) utilized completely different technologies, or 2) required complex and inaccessible scientific understanding. PikaBlue can provide consumers easy access to accurate and clear data on sustainability in the fashion industry. This is unlike existing solutions such as labels on the product that show that it is approved as eco-friendly, without comprehensible evidence. Since social media is the most common source of sustainability-related information obtained by our target group [10], we will advertise PikaBlue through influencers who promote sustainability on Instagram, YouTube, TikTok, and X. To promote our own company transparency and to retain the trust of our consumers, we will actively seek out third party committees (government agencies, research institutions, etc.) for annual official checks on our products' accuracy and legitimacy.

Pricing and Financial Statement

Price per PikaBlue	$20	$20	$20	$20
Total Number of Units Sold	20000	52000	120000	200000
Total Number of Consumers	3000000	3000000	3000000	3000000
Total Interested Consumer	20000	52000	120000	200000
Market Peneration Rate	0,67%	1,73%	4,00%	6,67%
Year	1	2	3	4
Gross Profit				
Revenue/Sales Turnover	$400 000	$1 040 000	$2 400 000	$4 000 000
Overhead Costs	$130 000	$130 000	$130 000	$130 000
Gross Profit	**$270 000**	**$910 000**	**$2 270 000**	**$3 870 000**
Recurring Costs				
Number of Employees	5	13	25	40
Employment Costs	$20 000	$52 000	$100 000	$160 000
Assembly Machinery Cost	$43 000	$111 800	$215 000	$344 000
Factory Maintenance	$20 000	$52 000	$100 000	$160 000
Utility	$17 000	$44 200	$85 000	$136 000
Sales & Marketing	$50 000	$200 000	$500 000	$1 000 000
Cost of Aluminium	$5 000	$13 000	$25 000	$40 000
Cost of Color Printing	$200	$520	$1 000	$1 600
Cost of One-sided Mirror	$13 000	$33 800	$65 000	$104 000
Cost of Protective Film	$6 000	$15 600	$30 000	$48 000
Cost of Electromagnetic Radiator	$25 000	$65 000	$125 000	$200 000
Cost of battery socket	$2 000	$5 200	$10 000	$16 000
Cost of Electrical Wiring	$10 000	$26 000	$50 000	$80 000
R&D	$60 000	$156 000	$300 000	$480 000
Market Research	$30 000	$25 000	$20 000	$13 000
Corporate Social Responsibility	$7 000	$18 200	$35 000	$56 000
Transportation	$20 000	$52 000	$100 000	$160 000
Equipment Replenishment Cost	$15 000	$39 000	$75 000	$120 000
Total	**$343 200**	**$909 320**	**$1 836 000**	**$3 118 600**
Net Profit				
Profit Before Tax	-$73 200	$680	$434 000	$751 400
Tax Rate	23%	23%	23%	23%
Total Tax Paid	0	$156	$99 820	$172 822
Net Profit	**-$73 200**	**$524**	**$334 180**	**$578 578**

The PikaBlue will sell for $20, an affordable price point for our target market. The number of people in our target audience is calculated based on the population of 16-45 year olds living in Tokyo. Through appealing to our market, we estimate 20,000 customers on our initial launch with a market penetration rate of 0.67%. The number is expected to increase exponentially. Due to startup costs such as machinery and infrastructure, we will first operate at a loss, gradually creating profit; we expect to hit $570k in our 4th year. Our startup will require $473,200 in initial investments, and we aim to set our interest rate of return at 7%, repaying the entire amount by our 4th year.

Conclusion

PikaBlue presents an accessible, affordable, and realistic solution to the challenge of firsthand consumer verification of recycled products. Our product empowers consumers to make informed choices in a sustainable fashion with its innovative technology which promotes easy understanding of the products at hand. With strategic marketing efforts and a clear financial plan, our product bridges the gap between green marketing claims and reality, supporting SDGs #12: Responsible Consumption and #13: Climate Action.

Works Cited

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